

# Impacts of soya substitution by protected urea on dairy cows zootechnical performance



## INTRODUCTION

**Nitrogen feeding** of dairy cows is an **essential point in nutrition**. It conditions the technical results (milk production level in particular). Improving the **efficiency of nitrogen use is a key point to work on to limit nitrogen waste** (target of waste reduction) and to improve the economic efficiency of livestock farming.

In this context, SIPENA has developed a product to meet these expectations.

**SIPUR is a controlled release urea containing 87 % urea, 10 % hydrogenated fat and 3 % calcium carbonate** included between 2 coats of protection (patented SIPENA process). This complementary feed contains neither palm oil nor GMO. The objective of this trial is to quantify the effect of the substitution of 700 g of soybean per 100 g of SIPUR on the zootechnical performance of dairy cows.

## MATERIAL ET METHODS

	Control	Trial
<b>Soy bean meal (kg)</b>	<b>1.5</b>	<b>0.8</b>
<b>SIPUR (kg)</b>	<b>0</b>	<b>0.1</b>
<b>Cost (€ / cow / day)</b>	<b>1.5</b>	<b>1.2</b>
<b>UFL</b>	<b>0.95</b>	<b>0.95</b>
<b>PDIN</b>	<b>107</b>	<b>102</b>
<b>PDIE</b>	<b>103</b>	<b>96</b>

The data were collected in a farm equipped with robots, with a Prim-Holstein herd, 116 dairy cows, from 23/01/2019 to 15/04/2019, ie over a 12 weeks period.

A first Performance Evaluation was performed on all animals receiving the same diet. Two groups of cows were then constituted: a control group, and a «treatment» group, receiving 100 g of SIPUR instead of 700 g of soya. The substitution was carried out gradually in 10 days and this period was closed by the second Performance Evaluation. A third Performance Evaluation was performed after 5 weeks of SIPUR use.

The individual data from the 3 Performance Evaluation that occurred over the trial period were extracted, and we tested the effect of the Group as well as other individual parameters on milk yield, milk fat, milk protein, and milk urea. This approach was carried out for the entire period and for each Evaluation independently.

## MAIN RESULTS

Significant differences between the 2 groups, corrected for other effects, were observed on milk production, milk protein, and milk urea level. No significant difference emerged on milk fat. These significant differences are of around 1.2 kg / day for the milk production, 0.6 g / kg of milk protein, and 20 mg / L of milk urea for the last Performance Evaluation.

Criterion	Control	Trial	Diff	Capital gain
<b>PL</b>	<b>32.2</b>	<b>33.4</b>	<b>+1.2 kg / j</b>	<b>0.02</b>
<b>TB</b>	<b>44.4</b>	<b>44.1</b>	<b>-0.3 g / kg</b>	<b>0.78</b>
<b>TP</b>	<b>32.9</b>	<b>33.5</b>	<b>+0.6 g / kg</b>	<b>0.0009</b>
<b>Urée</b>	<b>251</b>	<b>231</b>	<b>-20 mg / L</b>	<b>0.009</b>

The reduction of the milk urea is in favor of a better nitrogen valorization in the SIPUR group (less waste).

On the economic side\*, **SIPUR will allow a capital gain of 0.55 to 0.65 € / cow / day** for a soybean price ranging respectively from 320 to 420 € per ton, on the basis of the technical results obtained in the trial.

## CONCLUSION

**This test demonstrates that SIPUR controlled urea improves the use of nitrogen by dairy cows. The partial substitution of soya by SIPUR does not alter zootechnical performance. It should be noticed that the intake must be prolonged in order to reap the product full benefits. SIPUR also provides an answer for palm-free and GMO-free formulations.**

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\* SIPENA keeps all the economic data at your disposal

Realized in partnership with BCEL Ouest for the follow-up of the trial, performance measurements, data analysis and interpretation

